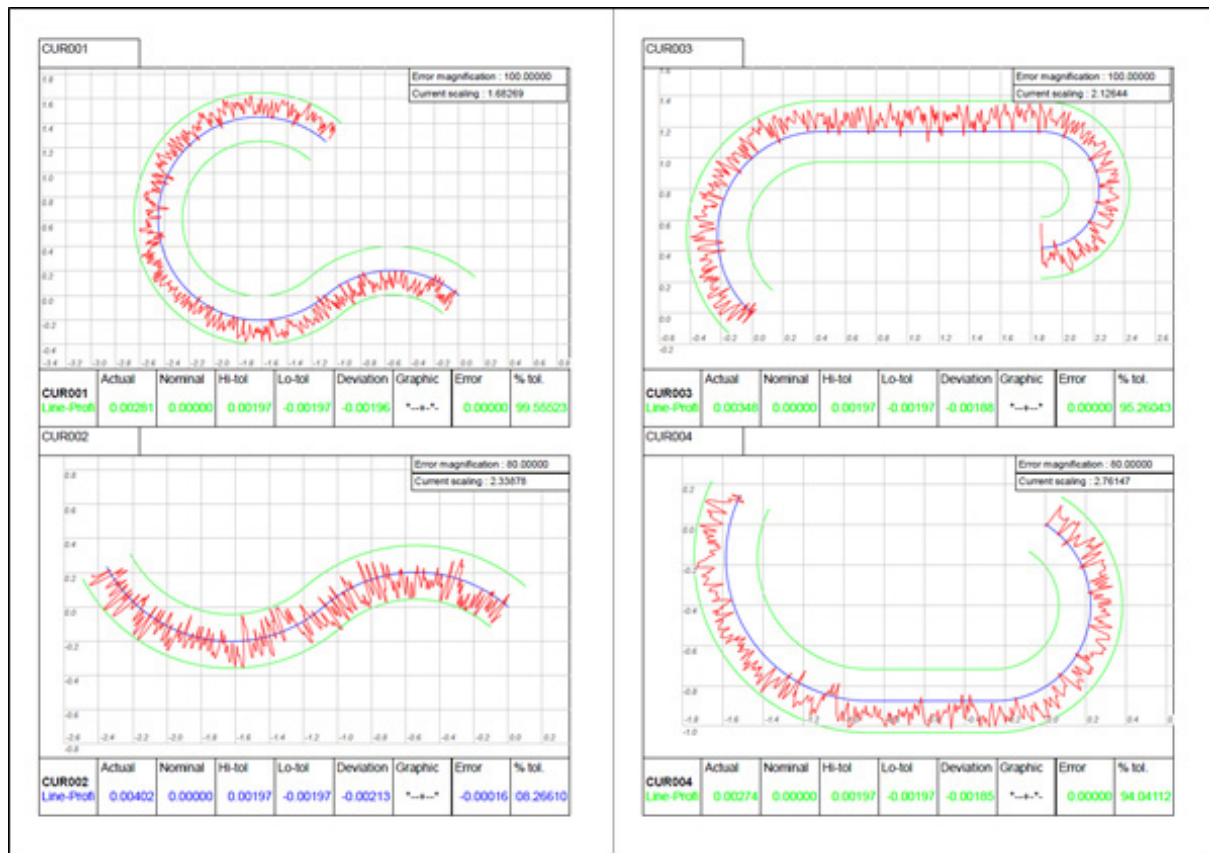


Advanced MODUS reporter



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Advanced MODUS reporter

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1 Advanced MODUS reporter

1.1 Tutorial pre-requisites

- The student should have completed all of the basic MODUS tutorials
- The student should have completed 'Introduction to high level programming', 'Create a basic user defined PDF report using MODUS reporter' and 'Further reporting'

1.2 Tutorial objectives

- Further experience of reporting techniques
- Introduction to the automated production of graphical reports from standard templates
- Further exposure to the use of variables and advanced programming techniques

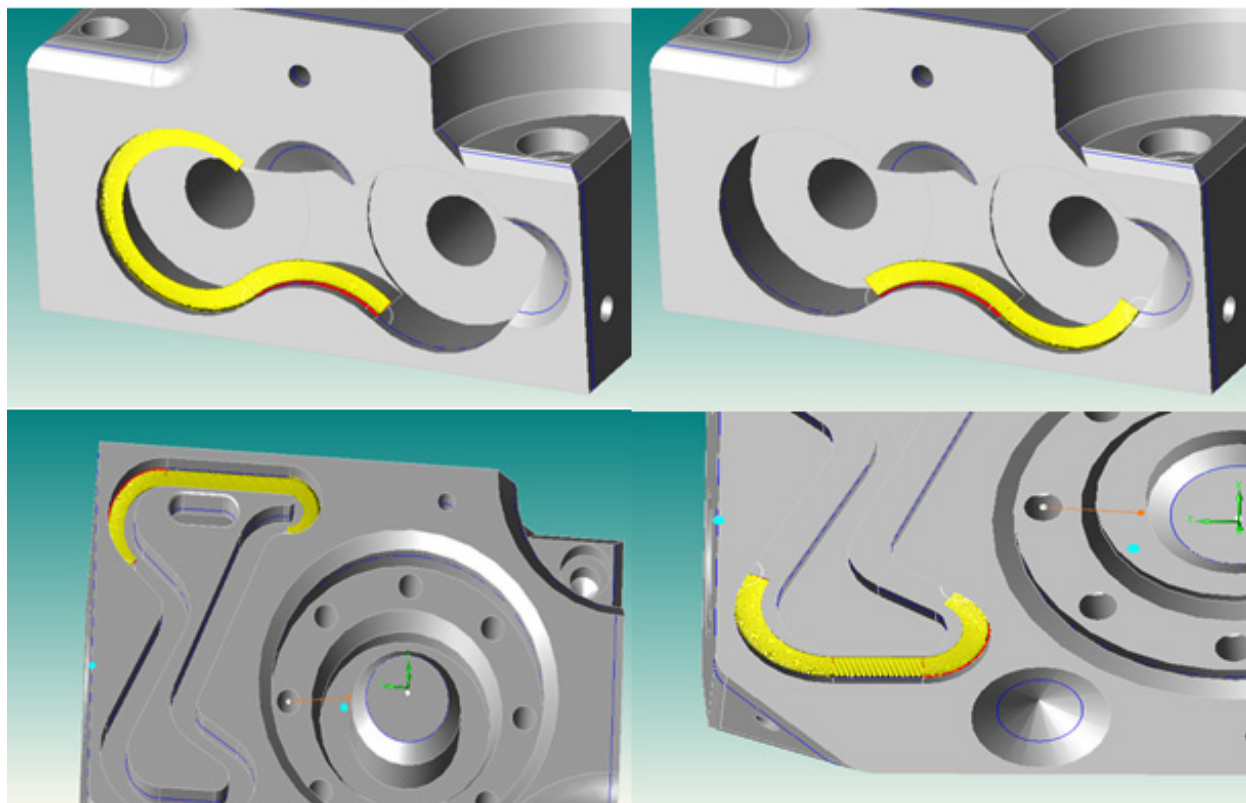
2 Introduction

One method of creating a MODUS report is to call it whilst running the program. The advantage of calling a report during program execution is that a simple report template can be created in MODUS reporter and populated with new data each time it is called. A very large report is possible by calling the same report template file several times, and appending pages to the final report. This report can then be saved with a specified name in a chosen location as a PDF file.

Additionally, report templates can be used to display certain features in user-defined layout (often with multiple features on a single page). For example, if there are 32 similar slots measured on a part, the profiles can be printed in groups of four per page; decreasing the number of pages from 32 down to eight.

3 Write a MODUS program

Create a MODUS program with four curve measurements and output the profiles. This tutorial uses two scans on the end of the standard Renishaw demo block and two scan on the demo block 'Racetrack' as shown below.



4 Feature relation

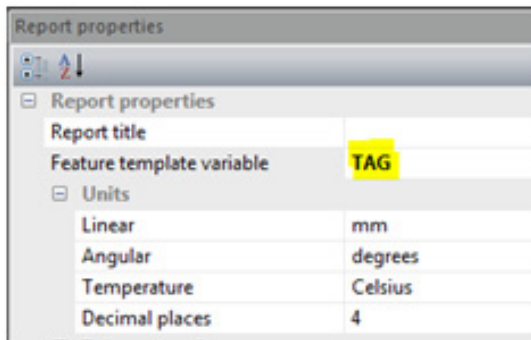
A feature relation command is added to the program, which allows the curve data to link to a templated report. This command must be typed in (CTRL - I). Change the curve names in the feature relation code if necessary. The words 'FRONT' and 'BACK' are aliases for the curves that will be output to the report. This should be done before creating the report in MODUS reporter, since the feature relation is referenced in the report.

Example code:

```
F(F_REL1)=FEAT/RELATION,'FRONT',F(CUR001),'BACK',F(CUR002)
```

5 Template report

Open MODUS reporter and start a new report. In 'Report properties', add the text 'TAG' to the 'Feature template variable'. This indicates that this report will be a template report.



Add two curve output boxes and drag the two curves from the database. Change the look of the report as necessary and add a 1 row / 1 column table to each curve output box. This will hold the names of each curve.

Once all the required information has been added to the report for each Curve save the report to the desired location.

6 Path and file name variable

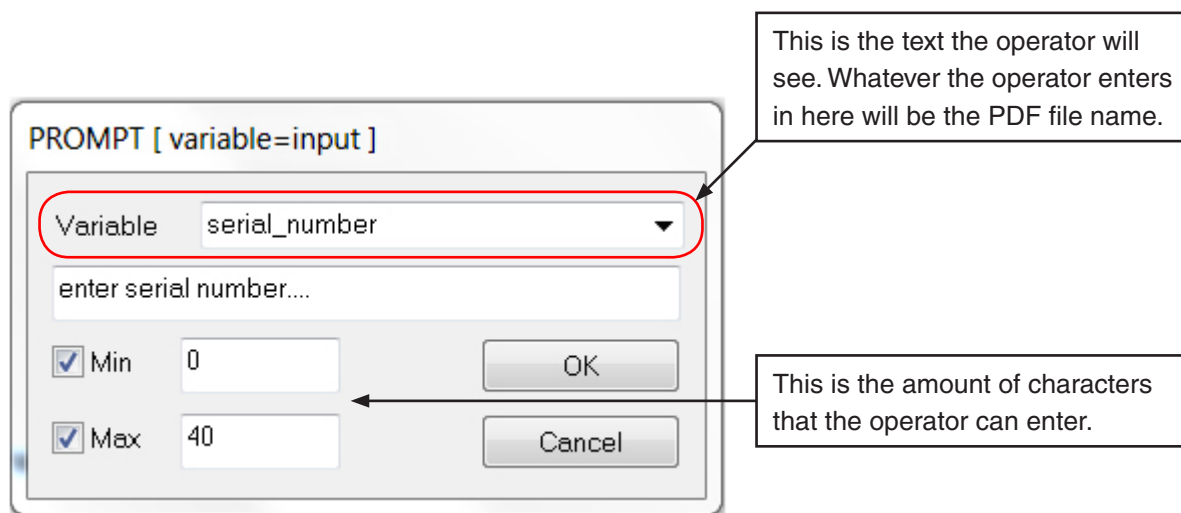
Declare 4 local character (CHAR) variables to hold the feature, file path, printer and part serial number.

Example code:

```
DECL/LOCAL,CHAR,512,Feature_,Pathway,Printer,serial_number
```

Next, create a prompt (HIGH LEVEL - simple prompt) for entering the file's name.

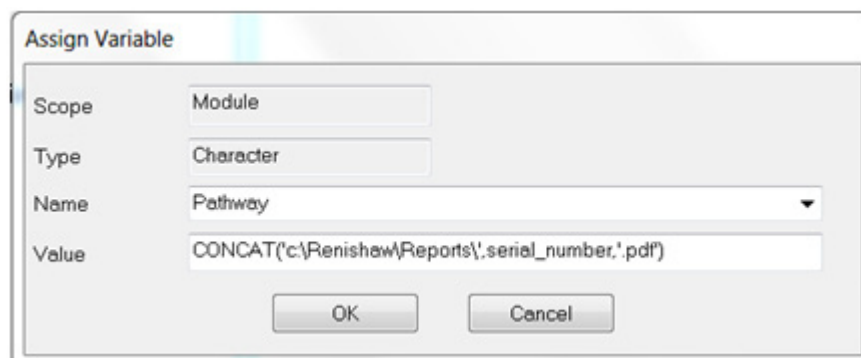
For this example, the serial number has been chosen to be the file name, but it could be anything (e.g. part, date, operator or a combination). It gives the PDF file a unique designation.



Example code:

```
serial_number=PROMPT/'Enter a serial number....',40,0
```

Next, combine the file name and path to a variable, such as the 'Pathway' variable in this example:

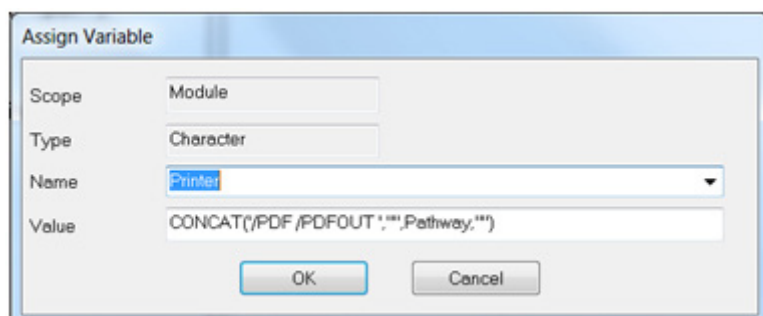


Example code:

```
Pathway=ASSIGN/CONCAT('C:\Renishaw\Reports\',serial_number,'.pdf')
```

7 Printer variable

A variable must be assigned, which will define how the report is printed. It will be used when calling the template file. This combines the words '/PDF /PDFOUT' along with the 'Pathway' variable. The string value /PDF sends the report to the PDF file and /PDFOUT appends to an existing PDF file if it already exists. The 'Pathway' variable specifies the location to save the file.

A screenshot of a software dialog box titled "Assign Variable". It contains four labeled fields: "Scope" with a text input containing "Module", "Type" with a text input containing "Character", "Name" with a dropdown menu showing "Printer", and "Value" with a text input containing "CONCAT('/PDF /PDFOUT ','',Pathway,'')". At the bottom are "OK" and "Cancel" buttons.

Scope	Module
Type	Character
Name	Printer
Value	CONCAT('/PDF /PDFOUT ','',Pathway,'')

Example code:

```
Printer=ASSIGN/CONCAT(' /PDF /PDFOUT ','',Pathway,'')
```

Note the symbols used before and after the commas, either side of the word 'Pathway' above, are as follows:

Single speech mark followed by double speech mark followed by single speech mark

To print the data out (on paper) then simply use:

```
Printer=ASSIGN/' /p'
```

GUIDANCE NOTE: Add a space after the first quotation (e.g. Printer=ASSIGN/' /p') or MODUS will not allow this variable assignment.

8 Feature variable

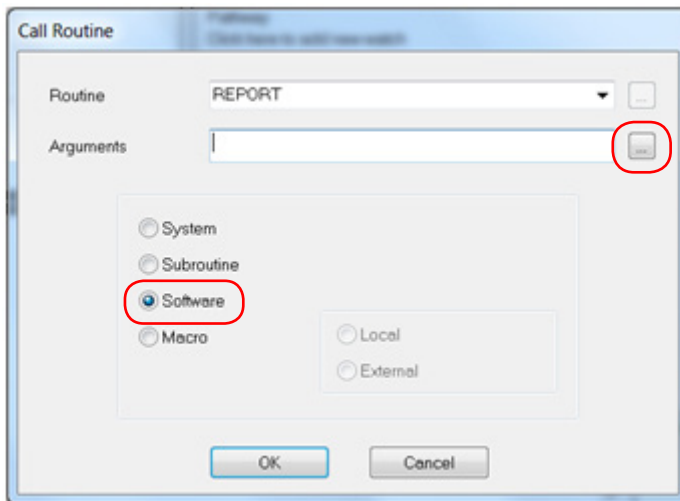
If there is only one feature specified in the template report, the feature names variable can contain a single curve feature name. However, since this report requires two features, the RELATION feature must be used, which contains a reference to two curve features. Create an assignment statement to assign the RELATION feature to a variable.

Example code:

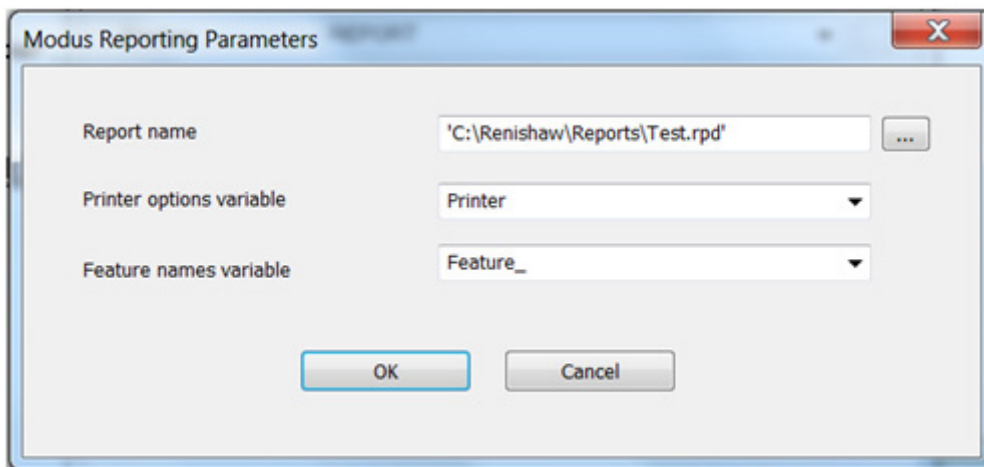
```
Feature_=ASSIGN/'F_REL1'
```

9 Call the template file

A call routine (HIGH LEVEL, CALL) is used to generate the report from the MODUS reporter template. Ensure that the 'Software' radio button is selected, which will allow the 'REPORT' routine to be selected. Double click in the 'Arguments' box or click in the text box to bring up the 'MODUS Reporting Parameters' window.



All the fields for the 'MODUS Reporting Parameters' prompt box can be selected now. Select the appropriate template report and variables created earlier (e.g. Printer and Feature_).



Example code:

```
CALL/EXTERN,DME,'REPORT','C:\Renishaw\Programs\Training\Template Report.rpd',Printer,Feature_
```

When the program executes the call statement, a report will be generated for the features that were measured (e.g. CUR001 and CUR002).

10 Append further features to the template report

Additional pages can be appended to the PDF report by adding another 'RELATION' statement with references to the new curves. For example, if CUR003 and CUR004 are measured, the new statement will refer to those curves. When the CALL statement is re-run, the new curves will be placed in the same report template and then appended to the existing PDF report.

Example code:

```
F(F_REL1)=FEAT/RELATION,'FRONT',F(CUR003),'BACK',F(CUR004)
```

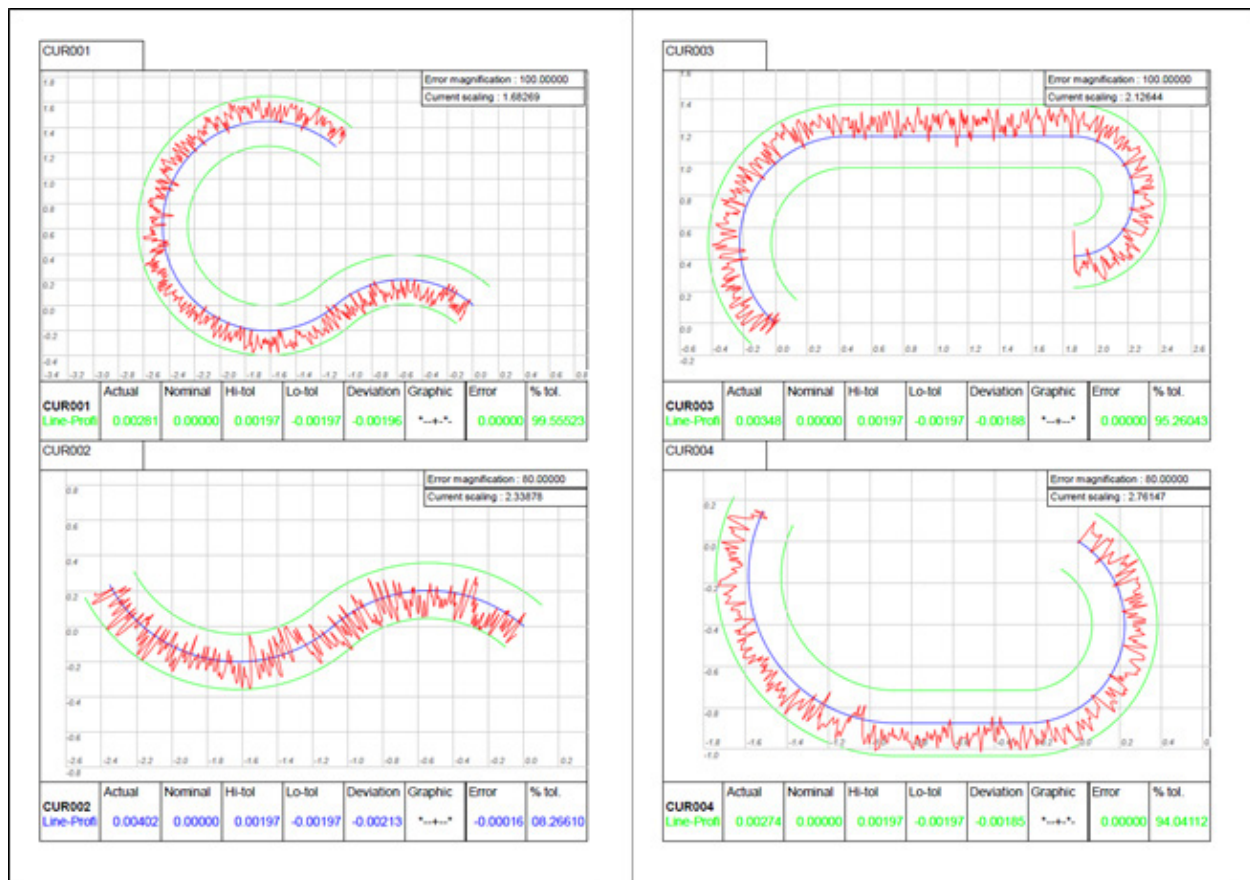
```
CALL/EXTERN,DME,'REPORT','C:\Renishaw\Programs\Training\Template Report.rpd',Printer,Feature_
```

Example reports:

There will be two pages of data in the tutorial example:

Page 1 contains CUR001 and CUR002

Page 2 contains CUR003 and CUR004



This pattern can be continued until all plots are completed. For example, if there are 20 scans to plot, there will be 10 pages of data.

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